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ABSTRACT

"Child as cultural apprentice" is a developmental psychologist's heuristic metaphor which is embedded in an individual-socioecological frame of reference. A basic theoretic feature of this metaphor is the explicit recognition of the interdependence of the process of child development and the socially provided resources for that development. The most important methodological implication of this way of viewing the child is the following: that which is potential in development will be expressed as actual under certain circumstances before it will be expressed more usually and generally. Cognitive performance in interaction with more expert others is one context in which the beginning phases of development can be observed and studied; fantasy play, organization of the child's physical environment, and friendship may be others. Child as cultural apprentice is a multifaceted representation of children's development within culturally structured environments. However, this representation is guided by a limited number of constructs, such as internalization, potential leading to actual, and interpsychological leading to intrapsychological. It is this use of a limited number of constructs enabling the representation of complex aspects of development that makes viewing the child as cultural apprentice especially valuable for developmental psychology. (Author/RH)

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Child as Cultural Apprentice

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Abstract

Child as cultural apprentice is a heuristic metaphor for developmental psychology which is embedded in an individual-socioecological frame of reference. A basic theoretical feature of this metaphor is the explicit recognition of the interdependence of the process of child development and the socially provided resources for that development. The most important methodological implication of this metaphor is: that which is potential in development will be expressed as actual under certain circumstances before it will be expressed more usually and generally. Cognitive performance in interaction with more expert others is one place where the "buds" of development can be observed and studied. Fantasy play, organization of the child's physical environment, and friendship may be others.

Child as cultural apprentice is a multifaceted representation of children's development within culturally structured environments. However, this representation is guided by a limited number of constructs (e.g., internalization, potential leading to actual, interpsychological leading to intrapsychological). It is the use of a limited number of constructs enabling the representation of multifaceted and complex aspects of development that makes the metaphor of child as cultural apprentice especially valuable for developmental psychology.

Child as Cultural Apprentice

In this paper, I will suggest that "child as cultural apprentice" is a heuristic metaphor for developmental psychology. I will do this in the following manner. First, I will acknowledge that "child as cultural apprentice" is technically a simile rather than a metaphor. Second, I will briefly discuss the role of metaphors in science. Third, I will present what I see as other approaches to development and problems with these approaches. Fourth, I will outline the approach of child as cultural apprentice. Finally, I will briefly indicate what I see as possible applications of this approach. To preview my conclusion, the metaphor of child as cultural apprentice captures the basic nature of individual/environment interdependence which is critical for a more complete understanding of development.

Metaphors in Science

Metaphors are powerful aids to science because they illuminate similarities and dissimilarities between a known and an unknown domain. In the use of metaphors we become sensitive to information that is gained by the interposition of two patterns, the pattern of our understanding of the more known, and the pattern of our understanding of the less known. The use of metaphors potentially permits a greater understanding because they allow us both to see the gaps in our understanding of the less known and to fill in these gaps with our understanding of the more known.

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However, there is something more to the use of metaphors. Metaphors highlight *some* aspects of a less known domain via comparison to *some* aspects of a more known domain. Part of the value and pitfall of metaphors is in knowing what aspects of the first domain to apply to the second. However, there is never the claim that all aspects of the more known domain have parallels in the less known domain. Metaphors can function and be applied at several different levels. For example, when we assert that "atoms are like the solar system", we do not claim that atoms have atmospheres or inhabitants, but rather that the organization of atoms is akin to the organization of solar systems. Thus, we predict that electrons, like planets, not only will orbit a central particle, but also will spin on their own axes. In this way, the application of a metaphor is heuristic in that it points to possibilities in the less known domain which would be underemphasized without the application of the metaphor. Further, it is important to note that the choice of aspects and levels of application of metaphors are themselves usually guided by grander metaphors or worldviews.

Other Approaches

There are three traditionally distinct approaches to "explaining" development. The first of these assumes that all children are created more or less equal and thus locates the responsibility for any differences in the environment. This approach follows from a mechanistic worldview in which organisms are seen as reacting to their environment. What is

needed to understand development from this approach is an enumeration of environmental contexts. While this characterization may capture few approaches in its extreme form, I would suggest that even current approaches which attempt to account for development through enumeration of social contexts fall into this general category. Further, approaches which at heart attempt to explain development through analysis of tasks or specification of domains also represent a subset of this category.

In either case, when carried to an extreme, the goal of enumeration of contexts moves the locus of causation of development to the environment. This result is equally the case whether the enumeration of contexts is based on aspects of the physical environment or of the social environment. (In fact some have argued that these may not be distinct cases.) Similarly, extreme analyses of tasks or domains results in the same category of explanations. Such a goal results in theoretical explanations based on situationism, so bearing at least a category resemblance to behaviorism.

The second attempt at explaining development assumes that all environments are created more or less equal and thus locates the responsibility for any differences in the child. This approach follows from a formistic worldview in which development is seen as unfolding from within the organism. What is needed to understand development from this approach is an enumeration of individual predispositions. Here again,

while this characterization captures few approaches in its extreme form, I would suggest that even current approaches which attempt to account for development through enumeration of individual constraints on development fall into this general category.

When carried to an extreme, the goal of enumeration of predispositions moves the locus of causation of development to the individual. This result is equally the case whether the enumeration of predispostions is based on aspects of biological predispositions or of psychological dispositions. (In fact some have argued that these may not be distinct cases.) Such a goal results in theoretical explanations based on individualism, so bearing at least a category resemblance to nativism.

There are well-documented problems with theoretical explanations grounded either in behaviorism or nativism. Failures of explanation by either approach are usually met with the claim that we just need to elaborate our knowledge of the environment or individual respectively. This enumeration activity, whether of contexts or predispositions, usually leads to a proliferation of influencing variables. In these activities, extensive lists of aspects of context or aspects of predispositions, derived both theoretically and empirically, are generated and presumed to be causally related to one or another aspect of development. An item or items are then drawn from these lists, manipulated as independent variables and

conclusions about there causal relationship with one or another aspect of development are drawn. However, when carried to an extreme, elaborations of either context or predispositions are dispersive, and thus not an approach which is compatible with current conceptions of science.

The obvious solution to the observation that theories that locate explanations of development almost exclusively in either the environment or the individual are problematic is to respond to the question of where to locate causation with the answer "both" -- both in the environment and in the individual. Thus, the third attempt at explaining development assumes that both children and environments differ and thus locates the responsibility for any differences in child/environment interaction. This approach follows from an organismic (read interactionism not constructivism)worldview in which development is seen as following from the activities of an active organism within a structured environment. What is needed to understand development from this approach is an enumeration of *both* individual predispositions and environmental contexts. Here again, while this characterization captures few approaches in its extreme form, I would suggest that current approaches which attempt to account for development through placing a highly predisposed child in a structured environment (e.g., Piaget) or a predisposed child in a highly structured environment (e.g., Gibson) fall into this general category.

While these approaches are starts, and I think good ones, they too have some drawbacks. First, most theories of both environment and individual focus primarily, although not exclusively, on physical environment and focus primarily, although not exclusively on biological predispositions. Second, such approaches are usually subject to the same "commitment" phenomenon as most other attempts to coordinate multiple perspectives: the attempt to consider both organism and environment often works fine in theory, but usually breaks down in investigative practice. Thus, these approaches usually follow a pattern of separate enumeration of characteristics of both individual and environment followed by attempts to put them together.

This pattern reflects a basic error in our attempts to understand the prevailing patterns of complex processes -- let's take it apart and then conclude that an approach is inadequate when our combined knowledge of the parts does not add up to more complete understanding of the whole. Such an approach violates the basic interdependence of interaction, an interdependence which is lost once we decompose it into parts, and is not regained even when we add the parts back together.

This approach is similar to trying to understand the complex process of bipedal locomotion by first examining the process with one leg restrained, then with the other leg restrained, then combining the two findings and "discovering" that people walk by hopping first on one foot and then on the

other! A similar "one-legged" fallacy is committed when characteristics of environment and individual are enumerated separately and then recombined.

Child as Cultural Apprentice

To summarize, we need a metaphor and theory of development which: 1) recognizes co-contribution of environment (both physical and social) and individual (both biological and psychological); 2) captures complexity and multiplicity of both environment and individual without becoming situationistic or modularistic; 3) acknowledges in theory and supports in investigation the inherent interdependence of the dialectical relationship between individual and environment.

I believe that child as cultural apprentice provides a metaphor of child development which does all three. The metaphor of child as cultural apprentice explicitly acknowledges that individual and environment are organized and structured, co-evolved, and interdependent. Child as cultural apprentice is a metaphor which is embedded in an individual-socioecological frame of reference. A basic theoretical feature of this metaphor is the explicit recognition of the interdependence of the process of child development and the socially provided resources of that development.

Let me quickly illustrate this theoretical feature through the use of two notions drawn from Soviet Psychology. Leont'ev suggests "that each stage of psychic development is

characterized by a definite relation of the child to reality that is the leading one at that stage and by a definite, leading type of activity" (1981, p. 395). Development, both ontogenetic and microgenetic, is led successively by the social activities of play, formal learning (including most adult-child interactions), peer interaction, and work. The use of this metaphor also is all illustrated by an often quoted aspect of Vygotsky's theory, that "every function in the child's development appears twice: first, on the social level, and later, on the individual level" (1978, p. 57). This in turn is embedded in what for Vygotsky and others is a basic process of development -- internalization.

The consideration of internalization during which psychological functions move from interpsychological to intrapsychological is clearly developmental in the strongest sense -- it focuses on the process of change. By this definition, cross-sectional comparison of differences is itself adevelopmental since such a procedure can never describe processes of change but instead only indicate that a change must have occurred since age differences exist (Winegar, Renninger, & Valsiner, 1989).

As illustrated by notions of leading activity and internalization, development is caused neither by environmental contexts nor by individual constraints. Neither is development the result of an interaction of environmental and individual factors. Rather, the process of development can be

characterized as an emergent organization of interdependent relationships between (biological and psychological) individuals and their (physical and social) environments.

There may be some concern that movements to approaches which consider psychological phenomena as best conceptualized as emergent properties of relationships (both intra- and inter-individually) will result in the loss of the individual. This follows since phenomena are no longer localized in the individual, the individual is no longer a primary or even necessary unit of consideration. This is perceived as problematic particularly for the explanation of similarity of performance across contexts which are usually attributed to an individual history factor be it learning history, experience, or development.

This concern is at least partially addressed by the recognition that the preferred unit of analysis, and thus the locus of continuity, is itself a social convention. For a cellular biologist the cell is the unit of analysis and the individual becomes an emergent property of patterns of cells. Other examples include population biologist or anthropologist, or social psychologist and roles. Like most other social conventions, choices of units of analysis arise for a purpose and then take on a life of their own eventually becoming independent of the factors which originally led to the selection of one over another.

The acceptance of the statement that locus of continuity is a social convention follows from the recognition that just as individuals can be thought of as patterns all the way down, they can equally be thought of as patterns all the way up. In developmental psychology, the choice of the proper convention of locus of continuity should be informed by good theories of similarity between environmental contexts and individual predispositions. A heuristic decision of where to locate continuity is finally reached by through the application of question driven theory and methodology. For the kinds of questions of most interest to this developmental psychologist, continuity, to the extent it is a meaningful construct, must itself be an emergent property of individual/environment relationships.

Research Implications of this Metaphor

When applied to research, the metaphor of child as cultural apprentice, suggests the need to consider the process through which social activities lead development. In order to consider this important point, let me paraphrase one implication of this metaphor in the following way: "That which is potential in development will be expressed as actual under certain circumstances before it will be expressed more usually and generally." This is obviously a quite rich statement that goes beyond metaphor. In fact, it can provide a framework for an entire programmatic research program that follows one basic rule: whenever we see an ability of interest in children, the

first step should be to look around for circumstances in which the ability is expressed prior to or to a greater degree than usual. We then can examine these circumstances for characteristics that might be related to the precocious expression. We can then "test" our identification of these characteristics and the possible relations between characteristics and development by examining similar circumstances for similar characteristics. For example, we may back up a few steps and see how an ability of interest was formerly expressed in social interaction. Then we can select aspects of interaction and observe or invoke them in another situations in which ability is not yet expressed and see if the same or similar intrapsychological processes obtain.

Applications of this approach are found in discussions of development which focus on participatory interaction (Nelson), guided participation (Rogoff), legitimate peripheral participation (Lave), and differential constraining/progressive empowerment (Renninger & Winegar). And some progress is being made through the application of this metaphor (e.g., Hinde, Perrot-Clermont & Stevenson-Hinde, 1985; Rogoff & Lave, 1984; Rogoff & Wertsch, 1984; Wertsch; 1985; Winegar, 1989).

However, cognitive performance in interaction with more expert others is only one place in which the "buds" of development can be observed and studied. There are several others. Vygotsky himself (1967) discusses the fantasy play of 3-year-old children as a zone of proximal development. He

claims that play leads development since in fantasy play the usual dominance of object or action over meaning is reversed. This reversal enables children to exhibit decontextualized, abstract thinking during fantasy play, a feature of adult thinking that will not appear in non-play contexts for some time to come. Vygotsky (1956, cited in Valsiner, 1987) also suggests that a zone of proximal development can be constructed by the organization of the child's environment. Thus, a child who grows up surrounded by books will learn to read with less instruction than a child who grows up in an environment in which books are absent. My students and I have recently collected pilot data that suggests that friendship may serve as a leading activity for the development for social reasoning. This preliminary study indicates that kindergarten children generate more entrance strategies and that the first entrance strategy generated is more sophisticated when children are reasoning about a group of friends than a group of non-friends. We are currently attempting to apply this paradigm to children's entry attempts into same- and opposite-sex play groups.

However, such research need not lead to a proliferation of leading activities or zones of proximal development whenever we find precocious child performance. Current research is attempting to discover under just what conditions zones of proximal development do obtain and what are the relations between the relevant features of those conditions and improved

child performance. Along these lines, Turkheimer, Bakeman, and Adamson (1988) have recently suggested that in some circumstances interaction with peers may decrease the level of sophistication of children's play. Similarly, I am currently attempting to replicate our entrance strategy findings and to discover if the same increased sophistication of social reasoning is exhibited in children's entrance actions as are suggested by their reasoning. I would suggest that these findings will make the most sense when we can elaborate and apply a theory of the process through which leading activity "leads" development.

Conclusion

In conclusion, child as cultural apprentice with its emphasis on internalization points to several possible methods for investigation (as long as they maintain integrity of the qualities of interdependence and process) and possibilities for explanation (cognitive space, optimal arousal). This representation is guided by a limited number of constructs (e.g., internalization, potential leading to actual, interpsychological leading to intrapsychological). I would suggest that it is the use of a limited number of constructs enabling the representation of multifaceted and complex aspects of development that makes the metaphor of child as cultural apprentice especially valuable for developmental psychology.

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